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ORIGINAL ARTICLE

Development of the child abuse and neglect reporting self-efficacy questionnaire for nurses

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Abstract Taiwan nurses are mandated to report known or suspected child abuse and neglect (CAN), and self-efficacy is known to have an important influence on professional behaviors. The aim of this study was to develop and test the CAN reporting self-efficacy (CANRSE) scale as a measure of nurses' self-efficacy to report CAN. A sample of 496 nurses from Southern Taiwanese hospitals used the CANRSE scale. The psychometric evaluation of the scale included content validity, exploratory and confirmatory factor analyses, convergent validity, as well as Cronbach's α and test–retest reliability. Satisfactory internal consistency (Cronbach's $\alpha = 0.92$) and test–retest reliability were demonstrated. Confirmatory factor analysis supported the proposed models as having acceptable model fit. Exploratory factor analysis and regression analyses showed that the CANRSE scale had good construct validity and criterion-related validity, respectively. Convergent validity was tested using the general self-efficacy scale and was found to be satisfactory ($r = 0.53$). The results indicate the CANRSE is reliable and valid, and further testing of its predictive validity is recommended. It can be used to examine the influence of professional self-efficacy in recognizing and reporting CAN cases and to evaluate the impact of training programs aimed at improving CAN reporting.

Introduction

According to the Child Welfare Bureau of the Ministry of the Interior, the number of substantiated cases of child abuse and neglect (CAN) in Taiwan sharply increased from 6,059

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to 13,400 between 2000 and 2009. Substantiated cases of CAN have therefore more than doubled during this period [1]. At the same time, the population of children under 18 years of age has decreased from 6,578,456 (29.53%) to 5,396,345 (23.34% of the population) [1]. CAN is serious in Taiwan as well as throughout Eastern Europe, the US and Australia [1,2].

Legislation mandating nurses to report child abuse has been enacted in many countries, including Taiwan. Such legislation exists to protect children, respect their rights, and prevent abuse and neglect. According to Article 30 of the Taiwanese Children and Youth Welfare Act (2003), CAN involves children and adolescents below 18 years of age being injured or suffering negligent treatment, such as abandonment, or physical and mental mistreatment, which are harmful to physical and mental health. Article 34 of the Child and Youth Welfare Act (2003) states that "multi-professional collaboration such as doctors, nurses, clinical psychiatrists, child protectors, social workers, police and educators should take responsibility to report cases of CAN to the county/city social affairs bureau or local police office not later than twenty-four hours after discovery" [3].

North America led the way in passing this legislation. In Australia, legislation was first enacted in South Australia in 1972, with the rest of its eight states and territories extending mandatory reporting requirements following this [4]. In 'Taiwan, mandatory reporting legislation was enacted in 1993, but compliance by nurses and other health professionals remains inadequate [2]. The reporting behavior of 1400 Taiwanese nurses, including pediatric, psychiatric and emergency nurses, was examined by Feng and Levine in 2005. They found that 21% of these nurses had failed to report CAN cases in practice and that 86% had never reported a case. Lee, Fraser and Chou [3] found that almost 70% of the nurses thought that they needed more training courses on CAN.

A nurse has direct or indirect contact with children and therefore must be able to identify children who are vulnerable or at risk of harm or abuse, and act accordingly. It is important that nurses know where to seek expert advice and support, and how to write a report on child abuse. The majority of nurses were unable to recognize the abusive behaviors of perpetrators, however, and were unable to identify behaviors in children that were indicative of abuse or neglect [5,6]. Numerous studies have examined the factors influencing this failure, such as the ambiguous definition of the standards for abuse cases, insufficient training, personal factors, perceptions and attitudes toward CAN, and child abuse reporting outcomes [4,7,8]. In Taiwan, Feng and Levine [2] investigated 1400 nurses and found them to be frustrated by a lack of knowledge and ability to deal with the problem, the lack of feedback from child protection agencies, time and workload pressures, and a lack of confidence in the legal authority to which they were obliged to report cases.

Decision-making for reporting CAN cases is complex. One emerging concept in the literature, which is related to professional behavior, is self-efficacy. This is defined as a person's belief in their own ability to perform a certain task, and this is an important factor in decision-making and adopting behaviors [9,10]. Self-efficacy theory (SET) comes from social cognitive theory [11—13] and it includes "efficacy expectations" and "outcome expectations", each being major constructs. SET offers a clear basis by which to improve the effectiveness of nursing education and training, related as it is to driving behavioral change [14]. "Efficacy expectations" represent the belief that an individual holds that they can perform the specific behaviors necessary to achieve their objectives. This is directly connected to their level of confidence and judgments about their ability to organize and implement the actions needed to perform the necessary behaviors effectively [15]. Outcome expectations reflect a person's convictions that their actions will produce a given outcome [11—13]. Bandura [11] considered that the outcome expectancies of individuals are most frequently dependent on their judgments about what they can accomplish. He posited that self-efficacy affects behaviors both directly and indirectly through outcome expectancy.

Indeed, self-efficacy has been investigated in many areas of health research, including disease management, behavior control and health promotion [16—20]. Manojlovich [21,22], for example, has published two articles investigating the relationship between nurses' self-efficacy and their professional behaviors. He has found that self-efficacy is an important contributor to professional nursing practice. The first of these studies [21] explored how certain factors in the environment and personal characteristics interact to affect professional nursing behaviors in the US. The results showed that self-efficacy was a significant predictor of professional nursing behaviors. The second study [22] revealed that nursing leadership contributed to the effects of empowerment and self-efficacy on practice behaviors. In other words, nursing leadership can provide opportunities to enhance nurses' self-efficacy, in turn leading to improvements in professional practice behaviors. Taken together, these results suggest that nurses need to be confident of their ability to provide professional care to patients and be comfortable in making decisions relating to their jobs. Nurses also have to believe that they can produce the desired outcomes. If they do not believe in themselves, they will have little motivation to instigate the professional behaviors required. In Taiwan, more than 100 articles have been published that relate to self-efficacy in areas such as health education, social learning, smoking and drug abuse, information management and exercise behaviors. Very little research, however, has examined the concept of self-efficacy in nursing practice.

In summary, there is an emerging body of literature in professional self-efficacy that reflects a growing interest in the way in which SET can be applied to professional practice and behaviors. The construct of self-efficacy research in relation to enhancing identification and CAN reporting has not been examined, and no research instrument has been reported that measures this. Given the increasing evidence supporting the adequacy of self-efficacy in predicting professional behaviors, the purpose of this study was to develop a new instrument to measure the child abuse and neglect reporting self-efficacy (CANRSE) of nurses. This instrument needed comprehensive evaluation of the psychometric properties of its three scales.

Methods

Study design

The study aimed to develop and test a measure of CANRSE using two new scales: (a) self-efficacy expectations of CAN reporting (SE-CAN); and (b) the outcome expectations of CAN (OE-CAN). The scales were developed following a systematic review of literature on the topic using items adapted from a number of sources. A cross-sectional survey was used to collect data. An expert panel was used to test content validity with nurses before testing its stability, internal consistency, construct validity, convergent validity, criterion-related validity and reliability.

The principle of CANRSE development

This study explored the most common problems and concerns about reporting CAN when nurses are faced with suspected cases in clinical settings. Lee and Bobko [23] reviewed measures of self-efficacy and they concluded that, when operationally measuring this, researchers need to ask individuals whether they can perform specific tasks, and they also need to measure their degree of confidence at each specific performance level. Maibach and Murphy [24] and Lenz and Shartridge-Baggett [25] also offered guidelines for questionnaire development and suggested measuring efficacy-expectation and outcome-expectation.

Items for the CANRSE instrument were guided by an extensive literature review and a panel of three experts in SET and instrument development. To create the subscales of SE-CAN, a number of studies were used as references. Lee and Akhtar [26] examined the combined influences of various factors, such as organizational characteristics, individual background factors, perceived sources of job stress, resources for coping and on-the-job burnout. Manojlovich [21] also indicated that the current shortage of nurses is an important factor affecting their stress and behavior. Schunk and Carbonari [27] found that people with a comparable lifestyle, such as friends or colleagues, can serve as models, and that such models can show skills for the intended behavior, which is helpful for peoples' self-efficacy. Moreover, Schunk [15] conceptualized self-efficacy as an individual's level of confidence and self-judgment of their ability to organize and implement the action needed to be effectively performed. Self-efficacy is related to confidence—the confidence to achieve a specific outcome, execution behavior and the ability to achieve expected performance. Therefore, three domains of SE-CAN were identified: (a) prioritization of workload; (b) colleague support; and (c) confidence to report.

The items in the instrument could be developed to assess the three components of self-efficacy: level, strength and generality. Standard measures of self-efficacy strength (i.e. 0—10 semantically-anchored scales) have been widely used in health promotion research. When assessing the level of self-efficacy, it is recommended that assessment items be "graded" for difficulty. The final component of a self-efficacy assessment is generality. Based on previous research related to self-efficacy, the construction of an item will be developed to measure the level of nurses' self-efficacy in reporting cases of CAN.

In the SE-CAN scale, 32 items focus on the nurse's confidence to manage CAN cases in a clinical setting. The items were then constructed in two parts: self-efficacy (SE) of *suspected* CAN reporting (16 items), and SE of *known* CAN reporting (16 items). Each item provides an 11-point Likert-type scale (0 = no confidence at all to 10 = extremely confident). The suspected case is defined as a case of abuse that has not been established by proof or competent evidence. The known case is defined as a case of abuse that has been verified by clinical evidence or witness accounts.

The 12 items measuring OE-CAN focus on beliefs that reporting behaviors can produce outcomes in the child's and family's best interests. Many findings concluded that CAN is an issue that affects individuals and families, and is a burden to Children's Services. For example, Reece [28] reported on the long-term individual outcomes of child physical abuse, such as leaving home, traumatic brain injury or developmental problems. Gray et al. [29] reported that children who had experienced sexual abuse exhibited functional impairments, such as learning problems, psychiatric disorders, impaired attachment between parent and child or difficulty communicating with others. In addition to this, statistics recorded in Australia indicated that the annual national cost of CAN is $2.5 billion (Australian dollars) for Children's Services [30]. The consequences of CAN are therefore severe and individual and economic costs are extensive. Child benefit, family benefit and faith in Children's Services (such as the Children's Bureau and Social Affairs Bureau) were proposed to be most closely related to the outcome expectation of reporting CAN cases. These factors were determined as three subscales to evaluate nurses' outcome expectations in the CANRSE tool.

The participants are required to rate their level of agreement with statements using an 11-point Likert-type scale (0 = no confidence at all to 10 = extremely confident). Child benefit, family benefit and faith in Children's Services were proposed to be the factors most closely related to OE-CAN cases. Each of the four forms of abuse defined by the Child Abuse Prevention and Treatment Act [31] was included; i.e. physical, sexual, and emotional abuse and neglect.

Content validity testing

The items were reviewed by five experts for content validity. The experts included three nursing academics, a social worker and a clinical nurse with a special interest and expertise in CAN. They reviewed the CANRSE's readability and acceptability. Content validity indices (CVIs) were assessed by asking the panel members to rate each item's relevance to the construct using a five-point Likert scale. Each expert reviewed the instrument and critiqued items for clarity and relevance. The experts' feedback was used to revise the items before the scales were used for testing. The 44-item scales were then implemented in a pilot test involving a group of clinical nurses.

Pilot testing

The CANRSE was pilot-tested with 30 nurses for test—retest reliability. To be eligible, nurses had to be working in

general hospitals or community centers and be able to comprehend the items and instructions. Participants were excluded from the study if their working units did not take care of children. Novice nurses were also excluded from this survey because they were required to participate in the 3-month orientation program.

Participants were asked to complete the questionnaires to the best of their knowledge and were required to complete the same questionnaire 2 weeks later. The opportunity for open answers and comments followed each item so that participants could provide comments or feedback. Participants were able to complete the questionnaire within 20–25 minutes.

Participants and setting

The sample of nurses was drawn from hospitals in Southern Taiwan. To be eligible, nurses had to be working in in pediatric units in general hospitals or community centers. Ethical approval was received from the appropriate Human Research Ethics Committees in Taiwan's hospitals. Signed consent forms were obtained after receiving nurses' agreement to participate, and the questionnaires were distributed. A reminder letter was sent to each eligible unit 1 week after the initial survey. This was a thank you/reminder to all participants and aimed to encourage an increase in response. Participants' personal information was keyed into a secure, computerized database that was maintained by us. All participation in this study was voluntary, and participants had the right not to answer any questions. In addition, anonymity and confidentiality were assured, and participants could withdraw from the study at any time without penalty. According to Tabachnick and Fidell [32], a sample size of five to 20 times the total number of questions is required for an appropriate range. The CANRSE questionnaire included 44 items; therefore, a total of 700 questionnaires were distributed, and 496 participants completed the questionnaires (a 70.9% valid response rate).

Other measures

The following measures were used in addition to the CANRSE for convergent validity, criterion-related validity and demographic analysis:

- The general self-efficacy scale (GSE) effectively is a 10-item scale designed to assess general and optimistic self-efficacy to cope with a variety of difficult demands in life and to measure the strength dimension of self-efficacy. This scale is based on Bandura's social cognitive theory. The internal consistency applied in previous research was 0.93 [33].
- The likelihood to report CAN (LR-CAN) scale is based on Zellman's scale [34] and comprises 24 items relating to four vignettes based on true cases that have occurred in Taiwan. For example, the vignette of neglect describes "a 5-year old girl who lives in a single-parent family with her father. This girl has a history of asthma. One day, her father took her to ER with serious difficulty in breathing. She came to hospital in dirty clothes and had poor hygiene; other patients complained about her smell to medical professionals. You notice that her father smells of alcohol, and his eyes are glazed." Each vignette represents a reportable case of CAN and includes six items. Questions including "How serious is this case?" and "Would you be likely to report this case?" were then asked. Scores were derived from a 1–5 point Likert scale.
- Demographic variables included personal information (gender, age, marital status, parental status, education and religion), professional information (specialty, current position, training experiences in CAN, and experiences of reporting CAN) and organizational information (location of hospital and hospital attribution).

Analyses

Data analyses were performed using SPSS 13.0 (SPSS, Chicago, Illinois, USA). The psychometric elements examined in the CANRSE questionnaire were reliability and validity. Reliability estimation consisted of internal consistency reliability using Cronbach's α, and mean inter-item correlations were also calculated to provide further evidence of internal consistency. Construct validity was assessed by examining the correlation between SE-CAN and OE-CAN. A confirmatory factor analysis (CFA) was performed to test construct validity using AMOS 6.0 (AMOS, Chicago, Illinois, USA).

According to Lent, Hill and Hoffman [35], convergent validity was tested using Pearson's correlation. Such validity was assessed between the new scales and the GSE scale, which were thought to be related constructs in this study. The original GSE scale was a measure of self-efficacy in general that was developed in Germany by Schwarzer and Jerusalem [36]. The scale comprises 10 items that assess a person's self-efficacy in general situations. The instrument has been translated and adapted into 28 languages and was reported to be internally reliable (with α coefficients ranging from 0.75 to 0.93 across populations from 25 countries) [37]. The Chinese version of the GSE scale was developed by Zhang and Schwarzer in 1995 [33].

Criterion-related validity is a measure of how well one variable or set of variables predicts an outcome based on information from other variables [38]. The study by Lent et al. [35] used regression to test criterion-related validity. This type of validity used regression analysis between new scales and other measures (LR-CAN) to show that nurses' self-efficacy in CAN reporting could predict their likelihood to report CAN. Finally, exploratory factor analysis (EFA) was conducted to evaluate the internal structure of each scale. EFA using a principal components analysis was applied to investigate the constructs of SE-CAN and OE-CAN (with a varimax rotation method). Hair et al. [38] suggest that a factor loading of 0.4 or more should be considered important.

Results

Preliminary testing of the questionnaire

To ascertain the acceptability of the content and suitability of the wording of the CANRSE questionnaire, CVI was assessed by asking the panel members to rate each item's

relevance to the construct. Finally, 44 items in total (SE-CAN and OE-CAN) were included in this survey and examined by an international panel of five content experts. The CVI among the experts was 0.93 for the instrument. An acceptable CVI score is >0.8 [39]. Thus, the results indicated that the items in the CANRSE questionnaire were relevant to the measurement of nurses' self-efficacy in reporting CAN in Taiwan. Test–retest, separated by 2 weeks, was calculated using a Pearson's correlation to determine the strength of the relationship between participants (n = 30) and the CANRSE questionnaire over time. A Pearson's correlation coefficient of 0.83 for the total scores indicated that the instrument was stable over time. The intraclass correlation coefficient (ICC) was used to measure score consistency rather than absolute agreement [40]. Correlation coefficients for the three subscales "SE of *suspected* cases," "SE of *known* cases," and "OE-CAN" were 0.77, 0.78, and 0.84 respectively. The ICC values ranged from 0.58 to 0.88 across all variables for the initial test, and from 0.74 to 0.94 for the retest. The overall ICC coefficient is 0.78–0.87 (p <0.05). The results of both Pearson's correlation and ICC therefore showed that the scores of the CANRSE questionnaire were significantly correlated between pre- and post-test (n = 30).

Participants (n = 496)

The study included 491 female and five male nurses ranging in age from 20 to 56 years, with a mean age of 31.60 (standard deviation = 7.64). This was very close to the gender ratio in nursing in Taiwan [41]. Most nurses (n = 434; 87.5%) were between 20 and 40 years of age. More than half were unmarried, and 62.1% had no children. Over half of the participants had graduated from junior colleges of nursing (n = 279; 56.3%). All participants had worked as nurses for periods of between 3 months and 32 years.

Internal consistency of the CANRSE

Cronbach's α was 0.92 for the 44 items of the SE-CAN and OE-CAN scales; then, 0.91, 0.93 and 0.94 for the three scales of SE of *suspected* CAN reporting, SE of *known* CAN reporting and OE-CAN, respectively.

Construct validity

Construct validity was assessed by CFA with maximum likelihood, using the AMOS 6.0 statistical software program [42]. In this study, 44 CANRSE items were classified into three latent scales (SE of *suspected* CAN reporting, SE of *known* CAN reporting and OE-CAN) and nine observed subscales. The CFA outlining the framework of two hypothesis testing models of the CANRSE is presented in Fig. 1. The observed variables were nine subscales formed from 44 items. The reason for using subscales rather than individual items as measured variables was that the use of subscales reduced the number of parameters to be estimated and decreased the need for model estimation. Models with large numbers of parameters often have in

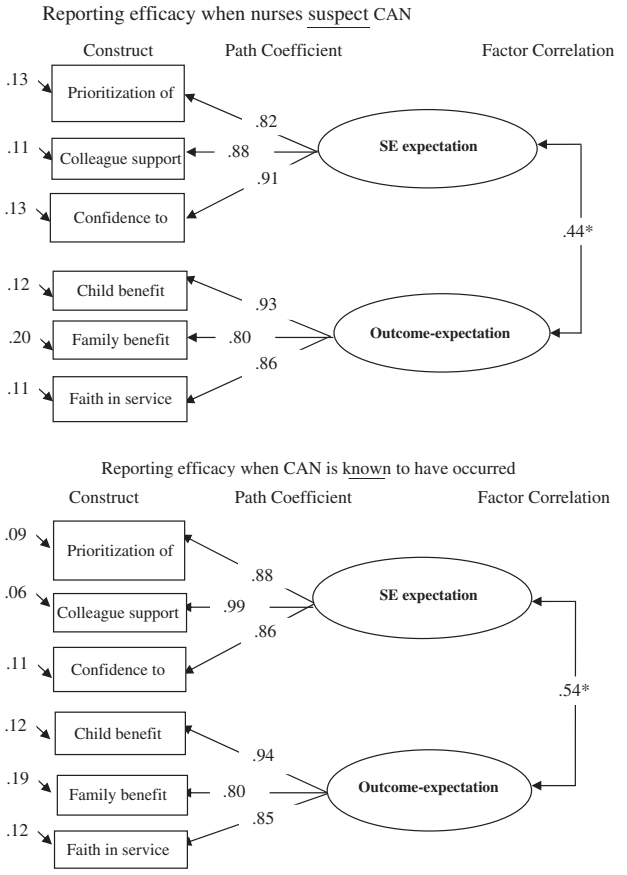

Figure 1. Measurement model of the CANRSE. Note: Circle = a non-observed variable that is a latent variable. Square = an observed variable that is an indicator. An asterisk indicates a significant correlation coefficient.

poor fit because too many parameters have to be estimated [43,44].

The overall fit of the three factor models was evaluated by using the "goodness of fit" indices to evaluate the overall fit of the proposed CFA model. The indices include chi-square value, chi-square/degree of freedom ratio, goodness of fit index, adjusted goodness of fit index, root mean square error of approximation (RMSEA) and normed fit index [45–49]. Table 1 provides summaries of the results of the overall fit for two hypothesis testing models of the CANRSE. For example, the RMSEA also suggested a data good fit. The Bentler-Bonett normed fit index confirmed the goodness-of-fit. Both models represented adequate fit. The results of goodness of fit of the two models were therefore acceptable and the construct validity of the CANRSE measurement was confirmed.

Self-efficacy of CAN reporting was structured according to three factors: SE of *suspected* CAN reporting; SE of *known* CAN reporting; and OE-CAN. Using CFA, the structure was supported, having adequate psychometric fit across the sample of Taiwanese nurses. Tables 2 and 3 provide the factor loading for each item. A factor loading of >0.5 was set as the criterion for an item to load on a factor [50]. All 16 items of the SE of *suspected* CAN reporting had loading factors >0.88; all 16 items of the SE of *known* CAN reporting

Table 1 Goodness of fit of the self-efficacy expectation of suspected and known child abuse and neglect

Indices	Evaluation standards	Results of the test	
		Self-efficacy expectation of *suspected* CAN scale	Self-efficacy expectation of *known* CAN scale
Chi-square	$p > 0.05$	$p = 0.61$	$p = 0.78$
Chi-square/degree of freedom	<3.0	1.861	0.600
GFI	>0.9	0.978	0.993
AGFI	>0.9	0.941	0.981
RMSEA	<0.1	0.063	0.001
NFI	>0.9	0.987	0.995

Key: AGFI = adjusted goodness of fit index, CAN = child abuse and neglect, GFI = goodness of fit index, NFI = normed fit index, RMSEA = root mean square error or approximation.

loading factors >0.90; and all 12 items of the OE-CAN had loading factors >0.92.

Convergent validity and criterion-related validity

A valid instrument should measure the underlying construct. In this instance, the CANRSE should measure the level of a participant's self-efficacy. To examine whether the CANRSE was valid in this regard, a measure of GSE, the GSE scale, was administered concurrently with the CANRSE (n = 496). Convergent validity was carried out using Pearson's correlation coefficient between scores on the Chinese version of CANRSE and the Chinese version of the GSE scale to determine the strength of the correlation. Table 4 presents the results of the Pearson's correlation analysis. All of the CANRSE subscales were significantly correlated with GSE. The "colleague support to report known cases" subscale had the highest (0.592), and "prioritization of workload to report suspected cases" had

Table 2 Factor loading for self-efficacy expectation of suspected/known CAN scale

Items	Item, $M \pm SD$		Factor loading	
	Suspected	Known	Suspected	Known
Prioritise workload to report				
1. I am confident that I can prioritize my workload to report *physical abuse*	6.15 ± 2.13	7.11 ± 2.00	0.91	0.95
2. I am confident that I can prioritize my workload to report *sexual abuse*	6.47 ± 2.19	7.18 ± 2.03	0.92	0.94
3. I am confident that I can prioritize my workload to report *emotional abuse*	5.92 ± 2.14	6.82 ± 2.04	0.94	0.95
4. I am confident that I can prioritize my workload to report *neglect*	5.82 ± 2.08	6.70 ± 2.01	0.90	0.93
Colleague support				
5. I am confident that I can ask for support from my nursing colleagues when I report *physical abuse*	6.76 ± 2.13	7.33 ± 2.02	0.89	0.90
6. I am confident that I can ask for support from my nursing colleagues when I report *sexual abuse*	6.94 ± 2.18	7.37 ± 2.04	0.89	0.91
7. I am confident that I can ask for support from my nursing colleagues when I report *emotional abuse*	6.55 ± 2.08	7.09 ± 2 .02	0.91	0.92
8. I am confident that I can ask for support from my nursing colleagues when I report *neglect*	6.47 ± 2.10	6.97 ± 2.04	0.90	0.91
9. I am confident that I can seek the opinion from medical staff to report *physical abuse*	6.58 ± 2.08	7.30 ± 2.01	0.91	0.92
10. I am confident that I can seek the opinion from medical staff to report *sexual abuse*	6.65 ± 2.14	7.30 ± 2.01	0.91	0.92
11. I am confident that I can seek the opinion from medical staff to report *emotional abuse*	6.18 ± 2.04	7.03 ± 1.96	0.91	0.92
12. I am confident that I can seek the opinion from medical staff to report *neglect*	6.19 ± 2.04	6.96 ± 2.01	0.88	0.91
Confidence to report				
13. I am confident that I can report *physical abuse* cases	6.75 ± 2.11	7.66 ± 1.95	0.96	0.95
14. I am confident that I can report *sexual abuse* cases	6.82 ± 2.17	7.67 ± 1.99	0.95	0.95
15. I am confident that I can report *emotional abuse* cases	6.46 ± 2.13	7.40 ± 1.98	0.97	0.96
16. I am confident that I can report *neglect* cases	6.38 ± 2.14	7.35 ± 2.01	0.95	0.95

CAN = child abuse and neglect, M ± SD = mean ± standard deviation.

Table 3 Factor loading for outcome-expectation for CAN reporting scale

Items	Item, $M \pm SD$	Factor loading
Child benefit		
1. How confident are you that reporting child physical abuse is in the child's best interest?	7.22 ± 1.87	0.92
4. How confident are you that reporting child sexual abuse is in the child's best interest?	7.08 ± 2.01	0.94
7. How confident are you that reporting child emotional abuse is in the child's best interest?	6.90 ± 1.94	0.95
10. How confident are you that reporting child neglect is in the child's best interest?	6.90 ± 1.94	0.92
Family benefit		
2. How confident are you that reporting child physical abuse is in the family's best interest?	6.85 ± 1.93	0.93
5. How confident are you that reporting child sexual abuse is in the family's best interest?	6.70 ± 2.06	0.94
8. How confident are you that reporting child emotional abuse is in the family's best interest?	6.56 ± 2.03	0.96
11. How confident are you that reporting child neglect is in the family's best interest?	6.61 ± 1.97	0.94
Faith in service		
3. How confident are you that Children's Services will respond appropriately when reports of physical abuse are made?	6.85 ± 2.00	0.92
6. How confident are you that Children's Services will respond appropriately when reports of sexual abuse are made?	6.91 ± 1.99	0.93
9. How confident are you that Children's Services will respond appropriately when reports of emotional abuse are made?	6.54 ± 1.98	0.95
12. How confident are you that Children's Services will respond appropriately when reports of child neglect are made?	6.55 ± 2.00	0.92

CAN = child abuse and neglect, M ± SD = mean ± standard deviation.

the lowest correlation coefficient (0.480). Consequently, responses to each subscale of the CANRSE and GSE scales were significantly correlated. Moreover, the correlation coefficient between total CANRSE scores and GSE scores was 0.53, which clearly indicated that the responses to the CANRSE and GSE scales were significantly correlated. Given the moderate to strong correlations, it can be assumed that the CANRSE scores reflect an underlying psychological dimension of self-efficacy within nursing practice.

Table 4 Convergent and criterion-related validity of the CANRSE scale

Scales	GSE	LR (total)		
	Pearson's r	β	SE	R^2
Self-efficacy expectation for *suspected* cases:				
Prioritize workload to report	0.480***	.550***	.015	.302
Colleague support	0.523***	.611***	.016	.374
Confidence to report	0.524***	.613***	.015	.376
Self-efficacy expectation for *known* cases:				
Prioritize workload to report	0.559***	.652***	.015	.425
Colleague support	0.592***	.680***	.015	.462
Confidence to report	0.587***	.646***	.015	.417
Outcome-expectation of CAN reporting:				
Child benefit	0.563***	.624***	.016	.389
Family benefit	0.523***	.590***	.016	.348
Faith in Service	0.519***	.579***	.017	.335
Total items	0.531***			

Key: CAN = child abuse and neglect, CANRSE = CAN reporting self-efficacy, LR = likelihood to report CAN, GSE = General Self-Efficacy scale, SE = standard error.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$.

To assess the criterion-related validity of the CANRSE, multiple regression analysis was used to examine the extent to which nurses' self-efficacy predicted their likelihood to report CAN cases, as measured by the reporters to the four vignettes. Table 4 shows the results of the regression analysis using the CANRSE to predict nurses' likelihood to report CAN cases. Nurses' SE of known CAN cases affords greater prediction of the likelihood to report CAN than that of suspected cases. Results indicate that overall the CANRSE instrument had high criterion-related validity. "Colleague support to report known cases" had the strongest ability to predict likelihood to report, with a β value of 0.680, accounting for 46.2% of the variance in reporting CAN cases. "Prioritization of workload to report suspected cases" had the weakest ability to predict likelihood to report, with a β value of 0.550 for the subscales, explaining 30.2% of the variance in reporting CAN cases. All nine subscales of CANRSE were able to significantly predict nurses' likelihood to report. In other words, there is a causal link between self-efficacy and likelihood to report CAN cases. Moreover, raising the self-efficacy of nurses will improve their CAN reporting behavior. The differences in the predictive abilities between the nine CANRSE subscales were small.

Discussion

Psychometric testing of the CANRSE scale suggests that this tool could be adapted for future research. Our newly

developed CANRSE is a reliable and valid instrument by which to measure nurses' self-efficacy in CAN reporting. To the best of our knowledge, this is the first study in which a CANRSE instrument has been developed and psychometrically tested for nurses' self-efficacy of CAN reporting. Based on the data from a large sample of nurses in Taiwan, the instrument was found to have high content validity. The three mean constructs were coherent in the questionnaire, and the test–retest reliability estimated in the pilot study was high.

Internal consistency as assessed by Cronbach's α was very high. This may be related to the fact that nurses in Taiwan generally have similar backgrounds, including their educational experiences, work experience and information received about CAN from hospitals. This suggests that the responses of participants in this research may have been more consistent than those of nurses who have more diverse backgrounds, such as those in North America and Europe. Previous literature has indicated that participants' characteristics may have an impact on Cronbach's α coefficient values, especially if the backgrounds of the participants are homogeneous [51]. On the other hand, the high α values of CANRSE might be considered highly stable [52]. It was beyond the scope of the present study to combine suspected and known CAN in items. For example, in the item "I am confident that I can prioritize my workload to report suspected and/or known CAN," the decision to test the concepts of "known" and "suspected" CAN showed that future iterations of the CANRSE would classify the concepts as "known and/or suspected."

The items and nine subscales in both self-efficacy and outcome-expectation of this instrument were successfully developed. The results of the confirmatory factor analysis should only be considered as preliminary, however, until future studies apply the results of this study with a larger sample size and to other fields of investigation. The convergent validity analyses showed that the Pearson's correlation coefficients between the CANRSE and GSE scales are significantly positive. The strength of this relationship provides an indication of the instrument's ability to measure nurses' self-efficacy in CAN reporting, thus supporting the hypothesis. Moreover, the outcome of criterion-related validity analyses showed that the CANRSE can be used to predict nurses' likelihood to report CAN cases. This result is consistent with that of Manojlovich's [22] investigation into the relationships between self-efficacy, structural empowerment and professional practice behaviors, in which it was found that enhancing nurses' self-efficacy could improve their practice behaviors.

Some limitations of this study should be taken into consideration. Even though the response rate was high, it remains possible that nurses with high self-efficacy may be more likely to participate than those with lower self-efficacy. Another limitation is that this study used a cross-sectional design without a follow-up measure of actual behaviors in clinical settings. A longitudinal study is necessary to investigate nurses' actual reporting of CAN in clinical settings. Third, the results from vignette studies are limited to the actual conditions presented. While great care was taken to base the vignettes on previous research and the results of studies that had investigated these in detail, the cases were extreme and obviously reportable. The four vignettes chosen may not have elicited the fear of over-reporting that is commonly found to be a barrier to legal reporting in other studies, given their severe nature. Nevertheless, these vignettes were considered by the experts we consulted to be appropriate and were based on real cases. Responses did vary and allowed for detailed analysis of nurses' self-efficacy and the likelihood to report CAN cases in Taiwan. Finally, some subscales include only four items to evaluate self-efficacy for reporting four types of CAN. This may lead to high factor loadings of items, although a single-item measure may suffice [53]. Future study should examine whether a single item is sufficiently narrow or unambiguous to the respondents [53] for evaluating nurses' self-efficacy in reporting CAN cases.

Conclusion

Self-efficacy is an important predictor of behavior and confidence in behavioral achievements. It provides a particularly useful framework to predict the likelihood of nurses reporting CAN, because self-efficacy expectations and outcome-expectations can influence both the initiation and continuance of behaviors. Nurses' perceptions of self-efficacy can therefore influence reporting intention and determine the level of underreporting in specific situations. Self-efficacy may not be the only influence on such behaviors, but it is suggested that improvements in perceived efficacy might in turn improve nurses' reporting behaviors with appropriate professional skills and motivations.

The CANRSE scale is the first instrument designed to evaluate nurses' self-efficacy in CAN reporting. Nursing managers could apply the instrument to evaluate nurses' self-efficacy and improve their reporting behaviors in cases of CAN. In order to improve nurses' self-efficacy, management departments need to develop and implement a CAN assessment and reporting program. Moreover, nursing administrators need to encourage and enhance nurses' self-efficacy in CAN reporting. This study also revealed that colleague support is an important factor in increasing nurses' confidence in reporting CAN cases. Therefore, nurses and other health professionals should discuss the methods they feel are most helpful in identifying CAN cases and those that can help to deal with the relationships between victims and their families.

The result of this study is consistent with the findings of literature from other countries [12,22]. The convergent validity analyses showed that the relationship between the CANRSE and original GSE scales are strongly positive. Therefore, CANRSE should be applicable to nurses from countries other than Taiwan.

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